










Date: Monday, 5/15/2006 7:12:31 AM
 User: Linda Lacelle

Process Sheet

| | | | |
|---|--|---|-----------------------------|
| Customer | : CU-DAR001 Dart Helicopters Services | Drawing Name | : HIGH AFT X-TUBE 412 |
| Job Number | : 27084 | | |
| Estimate Number | : 10559 | | |
| P.O. Number | : N/A | Part Number | : D412664203 |
| This Issue | : 5/15/2006 S.O. No. : N/A | Drawing Number | : D412-664-243 REV B |
| Prsht Rev. | : NC | Project Number | : N/A |
| First Issue | : N/A Type : LANDING GEAR | Drawing Revision | : B |
| Previous Run | : 27083 | Material | : N/A |
| Written By | : <u>SEE COMMENT BELOW</u> | Due Date | : 5/30/2006 Qty: 1 Um: Each |
| Checked & Approved By | : <u>[Signature]</u> | | |
| Comment | Est Rev:E 04.02.16 Reformat; Added D3189-1 K/DS Est Rev:F 06-03-29 Remove Comments on Pick List JLM | | |
| Additional Product | | | |
| Job Number:  | | | |
| Seq. #: | Machine Or Operation: | Description : | |
| 1.0 | DC | DOCUMENT CONTROL | |
| |  |  | <u>①</u> |
| Comment: DOCUMENT CONTROL Photocopy bluefile and create labels as per PPP D412-664-203 CHG 003 <u>K5060510</u> | | | |
| 2.0 | D6009129 | Crosstube Material | |
| |  |  | |
| Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Pick: Qty Part number Description Batch 1 D6009-129 Crosstube <u>25942</u> Check OD = 3.500"; ID = 2.250" <u>M8 06/05/15 1</u> | | | |
| 3.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE | |
| |  |  | |
| Comment: MORI SEIKI CNC LATHE LARGE 1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA166 2-Turn first side as per Folio FA166 3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243. <u>M8 06/05/15 1</u> | | | |
| 4.0 | QC1 | INSPECT ALL DIM TO DIM SHEET | |
| |  |  | |
| Comment: INSPECT ALL DIM TO DIM SHEET <u>M8 06/05/15 1</u> | | | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|---------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Mfg / Design Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|----------------------------------|----------------|---------------------------|------------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Design Mgr | Approval QC Inspector |
| | | | Initial Design Mgr | Action Description Design Mgr | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

Date: Monday, 5/15/2006 7:12:31 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: HIGH AFT X-TUBE 412

Job Number: 27084

Part Number: D412664203

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA166

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243.

3-Polish entire outside surface of crosstube

4- Remove sand and plugs

5-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-243

M8 06/05/15 1

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

M8 06/05/15 1

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

BC 06.05.17 1

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

BC 06-05-18

9.0

QC3/5

INSPECT WORK/WING WALK



Comment: Inspect work & Chemical conversion Coat

DP 06-5-18

10.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D412-664-243 using CNC bender program 412-af and Folio FT010

DP 06-5-18

11.0

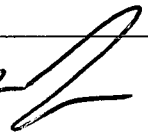

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

06-05-30 (1)

| W/O: | | WORK ORDER CHANGES | | | | | |
|--------|------|--|----|------|-----|---------------------------------|---|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Mfg / Design Mgr | Approval QC Inspector |
| 060612 | 16 | QCS, remove QCG permanent change  | | | | |  060612 |
| | | | | | | | |

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|----------------------------------|----------------|---------------------------|------------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Design Mgr | Approval QC Inspector |
| | | | Initial Design Mgr | Action Description Design Mgr | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

Date: Monday, 5/15/2006 7:12:31 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: HIGH AFT X-TUBE 412

Job Number: 27084

Part Number: D412664203

Job Number:



Seq. #:

Machine Or Operation:

Description:

12.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill pilot holes in tube as per Dwg D412-664-243 using drill Jig DT8550 & DT8551

BT 06-05-31

2-Ream hole to finish size in tube as per Dwg D412-664-243 using drill Jig DT8550 & DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

BT 06-05-31

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243

Pm 06-05-31 (1)

13.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

FF

06-05-31

Q.M

06-05-31

(1)

14.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Liquid Penetrant Inspection as per QSI 0380r

Issue P/O: 1386 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

E 206/06/02 (1)

15.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage

Ensure copy of NDT results attached to work order.

✓ AL 06/06/09

16.0

QCS

DIMENSIONAL CHECK



Comment: Inspect for damage & ensure results are as per Dwg D412-664-203

J 06-06-12 (1)

17.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

FC 06 06 14
MA 06 06 15 (1)

Date: Monday, 5/15/2006 7:12:31 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: HIGH AFT X-TUBE 412

Job Number: 27084

Part Number: D412664203

Job Number:



Seq. #: Machine Or Operation: Description :

18.0

QC14

Inspect Spray Paint



2060621(1)

Comment: Inspect Spray Paint

Wrap in plastic bag to protect from scratches

19.0

D2856600

Abrasion Strip



Comment: Qty.: 1.7640 f(s)/Unit Total : 1.7640 f(s)

Pick:

Qty Part number Description Batch

2 D2856-600(Cut to 10.090") Abrasion Strip B25656 RT 06-06-22

20.0

D2856600

Abrasion Strip



Comment: Qty.: 1.0080 f(s)/Unit Total : 1.0080 f(s)

Pick:

Qty Part number Description Batch

1 D2856-600(Cut to 10.870") Abrasion Strip B25656 RT 06-06-22

21.0

D28961

Support



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D2896-1 Support B26683 RT 06-06-22

22.0

D31891

Chafing Shield



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D3189-1 Chafing Shield B26687 RT 06-06-22

23.0

MS2192028

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-28 Clamp M160479 RT 06-06-22

Date: Monday, 5/15/2006 7:12:31 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: HIGH AFT X-TUBE 412

Job Number: 27084

Part Number: D412664203

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

| | | |
|------|-----------|--------------------------|
| 24.0 | MS2192030 | clamp(per MIL-DTL-8783C) |
|------|-----------|--------------------------|



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 MS21920-30 Clamp M100154 27 06-06-22

| | | |
|------|----------------|-------------------------|
| 25.0 | LANDING GEAR 1 | LANDING GEAR RESOURCE 1 |
|------|----------------|-------------------------|



Comment: LANDING GEAR RESOURCE 1

Assemble as per Dwg D412-664-203

RT 06-06-22

| | | |
|------|-----|------------------------------|
| 26.0 | QC5 | INSPECT WORK TO CURRENT STEP |
|------|-----|------------------------------|



Comment: INSPECT WORK TO CURRENT STEP

DPG-6-28

| | | |
|------|-------------|-----------------------|
| 27.0 | PACKAGING 1 | PACKAGING RESOURCE #1 |
|------|-------------|-----------------------|



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

| | | |
|------|--------|------|
| 28.0 | AN640A | Bolt |
|------|--------|------|



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Bolt

Batch: M19099 1mlr ✓ M101124 3mlr ✓

| | | |
|------|--------|------|
| 29.0 | AN641A | Bolt |
|------|--------|------|



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Bolt

Batch: M19633 ✓

| | | |
|------|------------|--------|
| 30.0 | AN960JD616 | Washer |
|------|------------|--------|



Comment: Qty.: 18.0000 Each(s)/Unit Total: 18.0000 Each(s)

Washer

Batch: M1100191 6mlr ✓

M100035 12mlr ✓

Date: Monday, 5/15/2006 7:12:31 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: HIGH AFT X-TUBE 412

Job Number: 27084

Part Number: D412664203

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

MS21042L6

Nut



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Nut

Batch: 119099

32.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

33.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D412-664-203

Location: 0

PPP Rev: 0

34.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

Job Completion



06/06/27 (1)
06-06-29

| W/O: | | WORK ORDER CHANGES | | | | | | |
|----------|------|--|----|------|-----|----------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Mfg Design Mgr | Approval QC Inspector | |
| 06-06-01 | 13 | Add Qc 5 before NDT. Permit change. QA QCS by: [Signature] 06-06-02 (1) | | | | [Signature] | [Signature] 06-06-01 | |
| | | | | | | | | |

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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| | | | Initial Design Mgr | Action Description Design Mgr | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: [Signature] Date: 06/06/09

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

| | | |
|---|---------------------|---------------------|
| DART AEROSPACE LTD | Work Order: | |
| Description: Crosstube Assembly (412 High Aft) | Part Number: | D412-664-243 |
| Inspection Dwg: D412-664-243 Rev: B | | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**
☐ **Prototype**

| Inspection Sheet | Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|------------------|-------------------|---------------|------------------|--------|--------|----------------------|----------|
| SIDE A | 2.684 | +0.005/-0.000 | 2.688 | ✓ | | | |
| | 2.748 | +0.005/-0.000 | 2.752 | ✓ | | | |
| | 2.884 | +0.005/-0.000 | 2.888 | ✓ | | | |
| | 3.019 | +0.005/-0.000 | 3.024 | ✓ | | | |
| | 3.163 | +0.005/-0.000 | 3.168 | ✓ | | | |
| | 3.308 | +0.005/-0.000 | 3.312 | ✓ | | | |
| | 3.429 | +0.005/-0.000 | 3.434 | ✓ | | | |
| | 2.990 | +0.005/-0.000 | 2.994 | ✓ | | | |
| | 2.618 | +0.005/-0.000 | 2.622 | ✓ | | | |
| | | | | | | | |
| | 0.200 | +/-0.010 | .200 | ✓ | | | |
| | R0.063 | +/-0.010 | .063 | ✓ | | | |
| | R0.500 | +/-0.010 | .500 | ✓ | | | |
| | 4.971 | +/-0.001 | 4.971 | ✓ | | | |
| | | | | | | | |
| | | | | | | | |
| SIDE B | 2.684 | +0.005/-0.000 | 2.688 | ✓ | | | |
| | 2.748 | +0.005/-0.000 | 2.752 | ✓ | | | |
| | 2.884 | +0.005/-0.000 | 2.888 | ✓ | | | |
| | 3.019 | +0.005/-0.000 | 3.023 | ✓ | | | |
| | 3.163 | +0.005/-0.000 | 3.168 | ✓ | | | |
| | 3.308 | +0.005/-0.000 | 3.312 | ✓ | | | |
| | 3.429 | +0.005/-0.000 | 3.433 | ✓ | | | |
| | 2.990 | +0.005/-0.000 | 2.994 | ✓ | | | |
| | 2.618 | +0.005/-0.000 | 2.622 | ✓ | | | |
| | | | | | | | |
| | 0.200 | +/-0.010 | .200 | ✓ | | | |
| | R0.063 | +/-0.010 | .063 | ✓ | | | |
| | R0.500 | +/-0.010 | .500 | ✓ | | | |
| | 4.971 | +/-0.001 | 4.971 | ✓ | | | |
| | 124.09 | +/-0.020 | 124.09 | ✓ | | | |
| | | | | | | | |

| | | | |
|------------------------|-----------------------|----------------------------|-----|
| Measured by: MS | Audited by: BG | Prototype Approval: | N/A |
| Date: 06/05/15 | Date: 06-05-17 | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A | 04.06.16 | New Issue (P/O D412-664-203) | KJ/JLM | |
| B | 06.03.09 | Dwg Rev updated | KJ/JLM | |

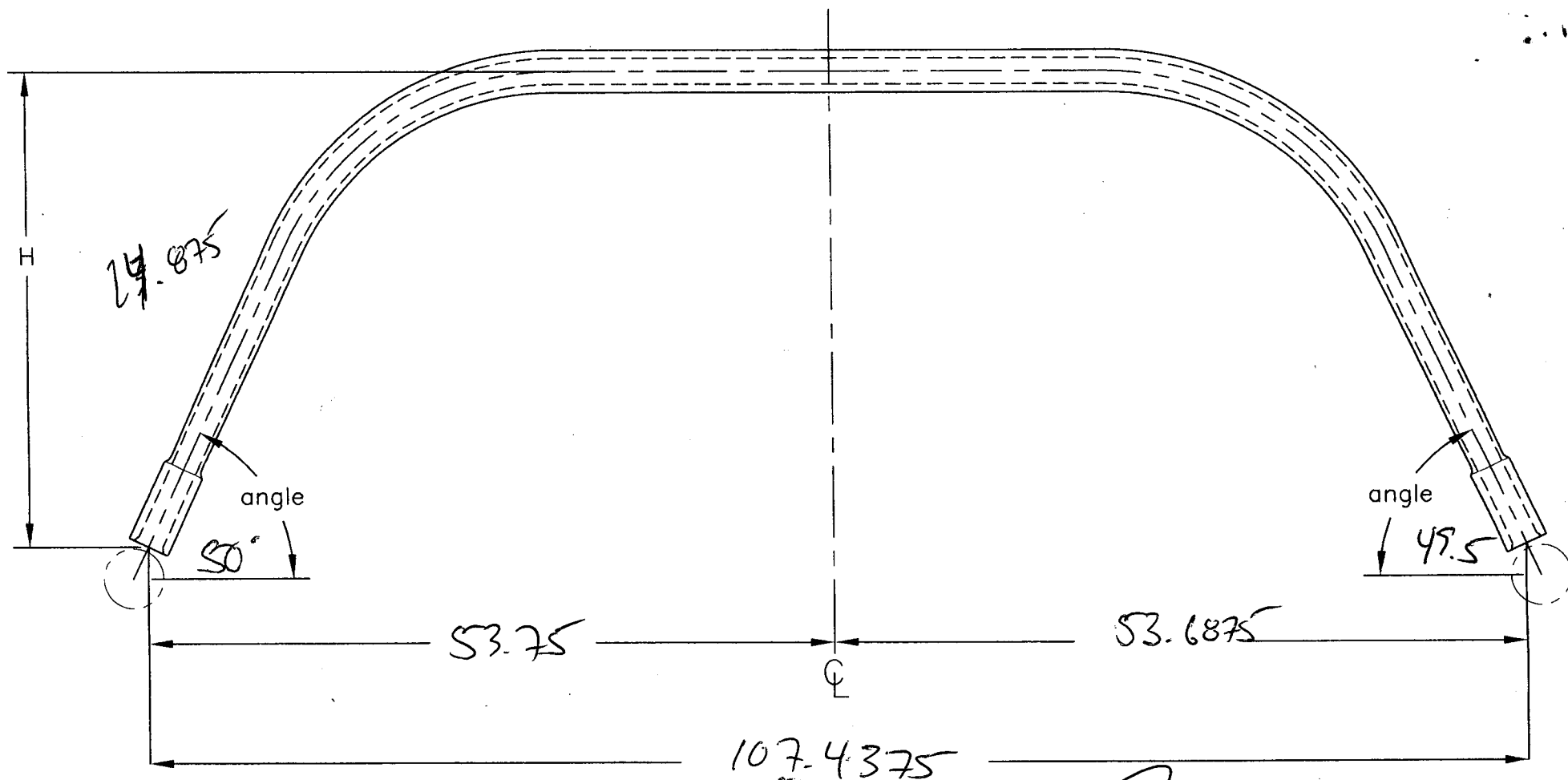
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|---------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Mfg / Design Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|----------------------------------|----------------|---------------------------|------------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Design Mgr | Approval QC Inspector |
| | | | Initial Design Mgr | Action Description Design Mgr | Sign & Date | | | |
| | | | | | | | | |
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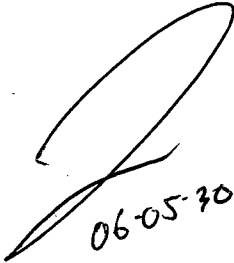
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

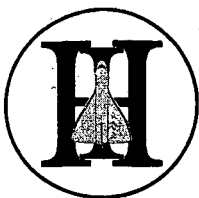
NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____



DATE: 06-05-30
 DESCRIPTION: 412-664-203
 BATCH NO: 27084
 DRAWING: 412-664-243 Rev. B
 H: 24.37
 1/2 SPAN: 53.72
 TOTAL SPAN: 107.44
 ANGLE: 50 ± 2


 06-05-30



HeathAir

INTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3
Tél.: (514) 636-1000 • Fax: (514) 636-0031

W.O. N° 34275

A.M.O. Number: 46/90

NON-DESTRUCTIVE TESTING REPORT

AIRCRAFT / COMPONENT INFORMATION

REGISTRATION:

MODEL/TYPE:

SERIAL NUMBER:

TOTAL HR/LDG:

OPERATED BY:

BASED AT:

INSPECTION REQUIREMENTS

Carry out FPI of (12) cross tube (external surface) as per ASTM E-1417-05 and the Dart QSI 038, Section 4.1.1 (on file at client) - parts delivered to HeathAir.

Qty (7) P/N D058-676-201 S/N's B19627, B19633, B19631, B19635, B19632, B19624 & B19630
Qty (5) P/N D412-664-203 S/N's B27082, B26672, B27084, B27083 & B26673

☐ RADIOGRAPHY

☐ ULTRASONIC

☒ PENETRANT

☐ MAGNETIC PARTICLE

☐ EDDY CURRENT

INSPECTION REPORT

Fluorescent penetrant inspection was performed in accordance with the above requirements on (12) cross tubes.

Note: A Level 3 penetrant was substituted for the requested Level 2 (3 is more sensitive)
Ardrox 970P25E Batch #04B503.

(12) cross tubes PASSED inspection.

~~THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH
THE APPLICABLE STANDARDS OF AIRWORTHINESS~~

INSPECTED BY: 

DATE June 8, 2006

INSPECTION STAMP(S) Not Required

CUSTOMER INFORMATION

CUSTOMER: Dart Aerospace

P.O. NUMBER 1386 ✓

ADDRESS:

CONTACT NAME:

LABOUR @

MATERIALS @

TRAVEL EXPENSES @

HOTEL EXPENSES @

\$

GST

PST

INVOICE NO.

TOTAL \$

WHITE COPY - INSPECTION FILE • YELLOW COPY - CUSTOMER • PINK COPY - ACCOUNTANT



HeathAir

INTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3
Tél: (514) 636-1000 • Fax: (514) 636-0031

W.O. No 34275

A.M.O. Number: 46/90

NON-DESTRUCTIVE TESTING REPORT

AIRCRAFT / COMPONENT INFORMATION

REGISTRATION:

MODEL/TYPE:

SERIAL NUMBER:

TOTAL HR/LDG:

OPERATED BY:

BASED AT:

INSPECTION REQUIREMENTS

Carry out FPI of (12) cross tube (external surface) as per ASTM E-1417-05 and the Dart QSI 038, Section 4.1.1 (on file at client) - parts delivered to HeathAir.
Qty (7) P/N D058-676-201 S/N's B19627, B19633, B19631, B19635, B19632, B19624 & B19630
Qty (5) P/N D412-664-203 S/N's B27082, B26672, B27084, B27083 & B26673



RADIOGRAPHY



ULTRASONIC



PENETRANT



MAGNETIC PARTICLE



EDDY CURRENT

INSPECTION REPORT

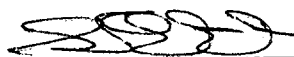
Fluorescent penetrant inspection was performed in accordance with the above requirements on (12) cross tubes.

Note: A Level 3 penetrant was substituted for the requested Level 2 (3 is more sensitive)
Ardrox 970P25E Batch #04B503.

(12) cross tubes PASSED inspection.

THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH
THE APPLICABLE STANDARDS OF AIRWORTHINESS

INSPECTED BY


S. FLETCHER

DATE:

June 8, 2006

INSPECTION
STAMP(S)

Not Required

CUSTOMER INFORMATION

CUSTOMER: Dart Aerospace

P.O. NUMBER:

1386

ADDRESS:

CONTACT NAME:

LABOUR

@

\$

MATERIALS

@

TRAVEL EXPENSES

@

GST

HOTEL EXPENSES

@

PST

INVOICE NO.

TOTAL \$

WHITE COPY-INSPECTION FILE • YELLOW COPY-CUSTOMER • PINK COPY-ACCOUNTANT